

**U. S. DEPARTMENT OF ENERGY
WORK BREAKDOWN STRUCTURE DICTIONARY
PART II - ELEMENT DEFINITION**

1. PROJECT TITLE/PARTICIPANT Environmental Management/Paducah Remediation Services, LLC (PRS)		2. DATE 06/29/07	3. IDENTIFICATION SITE Paducah Project DOE Portsmouth/Paducah Project Office (PPPO)
4. WBS ELEMENT CODE 04.11.01.03		5. WBS ELEMENT TITLE Southwest Plume	
6. INDEX LINE NO. N/A	7. REVISION NO. AND AUTHORIZATION Rev. 1		8. DATE 02/22/08
9. APPROVED CHANGES N/A			
10. SYSTEM DESIGN DESCRIPTION N/A		11. BUDGET AND REPORTING NUMBER N/A	
12. ELEMENT TASK DESCRIPTION <u>WBS STRUCTURE</u> The scope of this element includes the following sub-elements. <ul style="list-style-type: none"> • WBS 04.11.01.03.01 Southwest Plume (SW) Subproject Management • WBS 04.11.01.03.02 SW Plume Investigation/Evaluation • WBS 04.11.01.03.03 Comprehensive Environmental Recovery, Compensation, and Liability Act (CERCLA) Documentation <u>INTRODUCTION</u> In 1988 widespread contamination of groundwater by trichloroethene (TCE) and technetium-99 (Tc-99) around the Paducah Gaseous Diffusion Plant (PGDP) was detected. In 1993, an Engineering Evaluation/Cost Analysis (EE/CA) was approved that established the Water Policy Box to protect the public from using impacted groundwater. In 1995 and 1997, interim measures were taken to control the high concentration areas of the Northwest and Northeast Plumes. The interim measures included installation of two groundwater pump and treatment systems, one each at the Northwest and Northeast Plumes. Subsequently, remedial investigations were performed to determine the extent of groundwater contamination at PGDP. Results of these investigations detected the presence of dense nonaqueous-phase liquid (DNAPL) on-site and up to three dissolved-phase plumes (northeast, northwest, and southwest) outside the facility fence line. As a result of the remedial investigations and baseline risk assessment performed for the Groundwater Operable Unit (GWOU), the following groundwater problem statements have been developed. <ul style="list-style-type: none"> • TCE exists as DNAPL in these three main areas: C-400 Building, C-720 Building, and C-474-C Oil Landfarm. This organic compound is found in both the Upper Continental Recharge System (UCRS) and the Regional Gravel Aquifer (RGA) at the C-400 Building and in the UCRS at the C-720 Building and C-474-C Oil Landfarm. The mass of TCE in these areas may need to be reduced, removed, or contained before it will be possible to return the groundwater to beneficial use at the U.S. Department of Energy (DOE) property boundary (point of exposure). Additionally, DNAPL is present at Solid Waste Management Unit (SWMU) 4 Contaminated Burial Yard. SWMU 4 contamination will be remediated, as necessary, as part of the Burial Grounds Operable Unit baseline remediation. To address these problems, DOE has developed a remedial strategy for PGDP to stop plume growth and migration of contaminants and to reduce the toxicity and volume of contaminants. The strategy includes employing various technologies as an early action, source area actions, dissolved-phase plume actions, and institutional control actions.			

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<u>LOGIC RELATIONSHIPS</u>		
Interfaces		
<u>Internal to PRS</u>		
<ul style="list-style-type: none">• All PRS project managers and staff• All subcontractors		
<u>External to PRS</u>		
<ul style="list-style-type: none">• DOE Portsmouth/Paducah Project Office (PPPO) and support contractors• DOE Headquarters or other DOE sites (if applicable)• U.S. Environmental Protection Agency (EPA)• Commonwealth of Kentucky (KY)• Site tenants including United States Enrichment Corporation (USEC); Uranium Disposition Services, LLC; and Swift & Staley Team (SST)• USEC services in the area of property, information technology, radios, etc.• SST, particularly in the areas of property management, information technology, and security.• Nevada Test Site (NTS): Profiling and disposition of newly generated and classified and fissile low-level waste (LLW), if required or applicable.• EnergySolutions: Profiling, treatment, and disposition of mixed and LLW, if required or applicable.• Toxic Substances Control Act Incinerator, if required or applicable.• Commercial treatment, storage, and disposal facility (TSDF): For treatment and disposal of non radioactive hazardous waste, if required or applicable.• Stakeholders• Citizens Advisory Board and supporting contractor Edward Holmes, Inc.• DOE Integrated Safety Management System (ISMS) Verification Team• Other nonregulatory key interfaces		
Time Sequencing with Other Work		
<ul style="list-style-type: none">• Subproject Management - concurrent with activities related to the implementation of the Southwest Plume project.• Activities will be completed in accordance with identified contract milestones.• Task duration - 166 weeks (4/2006 – 09/2009).		
<u>SCOPE DESCRIPTION</u>		
WBS 04.11.01.03.01 Southwest Plume Subproject Management		
Provide overall management activities associated with this subproject. Activities performed under this subelement include the following:		
<ul style="list-style-type: none">• Perform technical, contractual, and project functions necessary to effectively manage and report scope, schedule, and budget.• Maintain all activities within the defined safety, environmental, and quality requirements.• Perform technical and personnel management functions.• Maintain technically qualified and properly trained personnel.• Develop, evaluate, and report project performance metrics.• Interface DOE, KY, EPA, other prime contractors, and stakeholders, as needed.		
The method(s) used for determining earned value for this WBS element is Level of Effort.		

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WBS 04.11.01.03.02 Southwest Plume Investigation/Evaluation PRS will complete the SW Plume Site Investigation/Risk Assessment (SI/RA) Report. It will revise the D2 report to incorporate DOE comments on the draft D2 provided at the contract transition. The D2 report will be submitted to the Commonwealth of Kentucky for review and approval. Due to continuing work to resolve the issue of an acceptable (to DOE, KY, and EPA) TCE degradation rate the following schedule extensions have been incorporated into this baseline for the D2 SI/RA Report beyond the standard Federal Facility Agreement (FFA) protocols. A 120-day extension for the additional regulator review of the D2 Report and a 240-day comment incorporation period and dispute resolution period followed by a 30-day review cycle by the regulators for a total of 390 days of extensions for the D2/R1. A TCE Degradation White Paper discussing the degradation factors utilized in current groundwater modeling has been prepared and will be submitted as an appendix to the D2 SI/RA Report. It is expected that state regulatory agencies may have significant comments regarding groundwater modeling assumptions. It is assumed the White Paper and D2 SI/RA Report will require additional revision resulting in the issuance of a D2/R1 version of the report under this element. The method(s) used for determining earned value for this WBS element is Percent Complete.		
WBS 04.11.01.03.03 CERCLA Documentation <u>Proposed Plan</u> The draft D0 Proposed Plan (PP) will be developed and submitted for internal review, then issued to DOE for review and comment. <u>Feasibility Study</u> <u>The draft D0 Feasibility Study 3 TCE source areas to the Southwest Plume will be developed and submitted for internal review, then issued to DOE for review and approval. The three source areas evaluated include C-720 building, oil landfarm (SWMU 1) and a portion of SWMU 102 (from C-400 to outfall 008). The Feasibility Study will be focused as negotiated with the regulating authorities and, as such, is not expected to have more than for alternatives. Comments from DOE will be incorporated and a final draft D1 Feasibility Study will be submitted to the regulators for review and comment. Due to expected discussions concerning the selective alternatives, a 30 day extension for regulatory review of the D1 Feasibility Study has been incorporated into the schedule. A final D2 Feasibility Study will be submitted to DOE for review. The issuance of the D2 Feasibility Study will be accomplished in the outyears.</u> The method(s) used for determining earned value for this WBS element is Percent Complete.		
<u>DELIVERABLES</u>		
WBS 04.11.01.03.01 Southwest Plume Subproject Management <u>Element Milestones</u> <ul style="list-style-type: none">• None <u>Element Deliverables</u> <ul style="list-style-type: none">• Paducah PRS Quality Assurance (QA) Project Plan• Paducah PRS Environmental Safety & Health (ES&H) Plan• Provide input to the following reports and submittals (if applicable):<ul style="list-style-type: none">○ Monthly Project Performance Report○ Risk Management Plan Updates		

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<ul style="list-style-type: none">○ Site Management Plan (SMP)○ SWMU Assessment Report○ Semiannual Critical Analysis Report○ Presentations○ FFA briefings○ Labor determinations○ Gold Chart Performance Metrics○ Annual updates to Site Treatment Plan○ Annual Compliance Agreement Report○ Annual ISMS Update○ Annual Work Smart Standards Update○ Financial Reporting, Management Analysis Reporting System○ Annual Statement of Costs Incurred and Claimed○ FFA Semiannual Progress Report○ Remedial Action/Regulatory Commitment Tracking Report○ Other reports/documents, as necessary		
WBS 04.11.01.03.02 Southwest Plume Investigation/Evaluation <u>Element Milestones</u> <ul style="list-style-type: none">● Southwest Plume SI/RA Report D2 version● Southwest Plume SI/RA Report D2/R1 version● Southwest Plume SI/RA Report D2/R1 version regulator approval <u>Element Deliverables</u> <ul style="list-style-type: none">● Southwest Plume SI/RA Report D2 version● Southwest Plume SI/RA Report D2/R1 version		
WBS 04.11.01.03.03 CERCLA Documentation <u>Element Milestones</u> <ul style="list-style-type: none">● Southwest Plume Feasibility Study D1 version <u>Element Deliverables</u> <ul style="list-style-type: none">● Southwest Plume PP, D-1 and D0● Southwest Plume Feasibility Study D-1, D0, and D1		
<u>REQUIREMENTS</u> <ul style="list-style-type: none">● CERCLA/National Contingency Plan● KY Hazardous Waste Permit (KY8-890-008-982)● FFA for the PGDP● SMP for PGDP (annual revisions)● Applicable state and federal laws and regulations [(applicable or relevant and appropriate requirements (ARAR))]● PRS ISMS● UEO-1066, as updated - Lease Agreement between DOE and USEC, Revision 4, dated October 30, 2001● Enclosure to GDP 95-0018, as updated - USEC and DOE Resolution of Shared Site Issues, Revision 1, dated March 30, 1998● Applicable PRS plans, policies, and procedures.		

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<ul style="list-style-type: none">• Waste Acceptance Criteria for all applicable treatment and disposal facilities that were in effect on April 24, 2006.• Applicable DOE Orders• Applicable Federal Acquisition Regulations <p>It is the core value of PRS that the safety and health of every worker, the public at large, and our environment are the most important assets that we are entrusted to protect. To accomplish this, an ISMS, based on DOE's ISMS, has been implemented that incorporates the five core functions and is based on the seven guiding principles. The objective of ISMS is to systematically integrate safety and environmental protection into the planning and execution of all work activities. The term safety encompasses Nuclear Safety, Industrial Safety, Industrial Hygiene, Occupational Health, Health Physics, and environmental issues. ISMS requirements flowdown to PRS subcontractors. The five core functions are (1) define the scope of work, (2) analyze hazards, (3) develop and implement hazard controls, (4) perform work within controls, and (5) provide feedback and continuous improvement. The seven guiding principles are (1) line management responsibility for safety, (2) clear roles and responsibilities, (3) competence commensurate with responsibility, (4) balanced priorities, (5) identification of safety standards and requirements, (6) hazard control tailored to work being performed, and (7) operations authorization.</p> <p>Before a subproject begins, several activities must be completed that demonstrate that all involved in the project have completed rigorous health and safety reviews and that all potential hazards of doing the work have been identified. The routine activities in remedial actions are conducted in accordance with standard operating procedures, activity hazard analyses, and Integrated Safety Management plans. Nonroutine work will require a readiness assessment, as necessary, to ensure complete health, safety, and environmental reviews prior to work start. This assessment is conducted by people experienced in similar kinds of work with the right to examine all aspects of a project about to commence and requires that the project team provide documented evidence that any applicable requirements of the job have been met.</p>		
<u>SCOPE ASSUMPTIONS</u>		
<ul style="list-style-type: none">• Due to expected negotiation of the interim remedial action for the sources of the Southwest Plume, active remediation of the source areas has been included in the outyears (beyond the PRS contract) of the project lifecycle baseline.• For development purposes the baselined interim remedial action to be implemented in the outyears, beyond the end of the PRS contract in the D0 PP includes a limited action consisting of continued administrative and access controls to prevent exposure to contamination, land use controls to prevent future exposure to contaminants in source zones, and installing eight additional groundwater monitoring wells at the DOE property boundary to protect potential off-site receptors by providing an early warning system for contaminants migrating to off-site locations.• The Southwest Plume focused Feasibility Study is assumed to evaluate four alternatives.		
<u>COMPLETION CRITERIA</u>		
WBS 04.11.01.03.01 Southwest Plume Subproject Management		
<ul style="list-style-type: none">• Completion of technical and reporting requirements for Southwest Plume thru 09/30/2009.• Deliver copies of required documents and files to infrastructure contractor for placement and		

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archive in the Environmental Information Center.

- Manage the Administrative Record and ensure procedural requirements are met.
- Deliver copies of CERCLA documents to the pre- and post-Administrative Records thru 09/30/2009.

WBS 04.11.01.03.02 Southwest Plume Investigation/Evaluation

- Submittal and approval of the D2/R1 Southwest Plume SI/RA.

WBS 04.11.01.03.03 CERCLA Documentation

- The CERCLA documents element will be completed upon submittal of the D1 PP and D2 Feasibility Study to DOE before 9/30/09).

RISK MANAGEMENT

See Risk Management Plan for analysis.

Risk was mitigated through the following efforts:

- Continue to perform due diligence in all work activities to reduce the possibility of safety incidents.
- Ensure that documents are written professionally and accurately.

CERCLA AREAS AND SWMU

SWMU No.	Description
1	C-747-C Oil Land Farm
209	C-720 Compressor Shop Pit Sump
201	PGDP Stormwater system (portion)
211	C-720 TCE Spill Site Northeast

BASIS OF ESTIMATE

1. Summary of Site Conditions

- The fieldwork and sample analysis associated with the Southwest Plume SI have been completed as documented in the D2 Southwest Plume SI/RA report. No fieldwork has been included in this baseline for the collection of data to resolve issues identified in the development of the baseline CERCLA documents.
- Review and approval of the D2 SI/RA report has been delayed. Debate/questions have centered around the TCE degradation factors utilized in the groundwater modeling that support the report.
- A D0 PP exists; preparation of the ROD and post-ROD documents has not begun, nor has the time of completion of baseline development been set.

2. Estimating Methods

☐ Parametric ☒ Bottom-Up ☐ Other: _____

3. Sources of Estimating

Labor – Technical review of documents to be prepared determined the mix of labor required for document preparation.

Equipment – This project consists of CERCLA documents only.

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Materials – The only materials used are those required to reproduce and distribute CERCLA documents. Binders, tabs, etc., were estimated based on information received from local office supply houses. Rates for mailing and other distribution methods were received as direct quotes from the U.S. Postal Service and Federal Express. Reproduction costs for standard size pages were received during the initial estimating kick-off meeting. Reproduction costs for drawings and page sizes other than standard were received as a direct quote from a local engineering document reproduction company.

Other Direct Cost – See Materials

Transportation – Not accounted for

Subcontracts – Self-performed work

4. Basis of Estimate (Unescalated Values)

WASTE VOLUMES

See attached waste performance metrics, as applicable.

PROJECT SCHEDULE

See attached schedule.

BASELINE BY YEAR

See attached Baseline by Year Report.